

# Use of Generators with Power Climber Hoists

Electric motors require up to three times their run wattage at startup. We recommend that for each hoist that you want to run from one generator, the generator should be able to produce 5000 Watts. If you have two hoists that are to be supplied with power from one generator, the generator must be able to produce at least 10,000 Watts. Below you will find the formula that shows how we calculate this.

**AMPS X VOLTAGE = WATTS**

1. Normal running amps for Astro 85 Series (single phase) hoists is **8 amps.**
2. Nominal line voltage for Astro 85 series (single phase) hoists is **208 volts.**
3. Multiplication factor of **3** for initial startup.

$$\underline{8 \text{ amps}} \times \underline{208 \text{ volts}} \times \underline{3} =$$

**4992 Watts** *(requirement for one Astro 85 Series hoist at startup)*

Generators of appropriate size for use with Power Climber hoists are common. Misunderstanding how generators operate is also common among operators.

The switch that operates the motor speed of the generator usually has two settings. The first setting for motor control is the "START/IDLE" position. The second setting is "RUN".

When operating these types of generators, it is necessary to start the generator and leave the motor speed control in the "START/IDLE" position for at least five minutes. Doing this gives the generator time to sufficiently warm up before meeting the demands of supplying power. After the manufacturers warm up time is met you must switch the motor speed control over to the "RUN" setting.

If the generator is not switched to the "RUN" setting before using the hoists, the generator will not supply enough voltage or wattage to safely run them. This procedure is typically overlooked by inexperienced operators and will require a service call, as some damage will occur to the hoist.

Some generators also have the ability to set the actual voltage that is being supplied through the powercord. When this function is present on the generator, it is important to make sure that this has been set to an appropriate voltage for the equipment that you wish to run.

## Start Capacitor is Damaged from Improper Sized or Improperly Used Generators

The operator will notice the following symptoms: (the same symptoms as a bad start capacitor.)

- Hoist can't lift a suspended load.
- Hoist only operates in down direction under load, even when depressing the UP control button.
- Hoist will only operate in the UP direction without a load. This symptom will only occur on hoists that use the run capacitor in the UP circuit. (single phase hoists)
- Hoist hums in the DOWN direction while being operated without a load. This symptom will only occur on hoists that use the run capacitor in the UP circuit.

The start capacitor is usually the first electrical component to suffer damage as the result of an improperly sized or improperly used generator. The start capacitor is designed to remain in the hoist motor circuit for only a short period of time. It is then removed from the circuit by the centrifugal switch when the motor reaches about 1,200 rpm. If the start capacitor stays in the hoist motor circuit too long, it will become damaged. Some reasons a hoist would not reach and pass the 1,200 rpm level are:

- Improper/ Inconsistent voltage
- Overloaded by weight
- Overloaded due to binding against an immovable object
- Improperly adjusted primary hoist brake
- Non-functioning primary brake

Other things that can cause damage to start capacitors would include voltage extremes. High or low voltage can cause capacitors to be short lived. The most common condition seen in the field is low voltage.

## Preventing Damage to Hoists when using Generators

The number one way to avoid having a service call, as the result of improper generator usage, is training. If your company is supplying the generator, make sure that you are familiar with all of its operations. Be able to explain these instructions to the customer who will use this equipment in combination with your Power Climber hoists.

When the equipment is delivered to the jobsite, have someone in your company set the voltage on the generator. Use a marker to locate where the needle on the meter should be at all times during normal operation. Then instruct the operators how to use all the equipment that has been supplied to them.

If your company is not supplying the generator, educate yourself about generator usage, and make sure that your customer is familiar with the one they intend to use.



Topic of Interest

# Use of Generators with Power Climber Hoists

Make sure that the generator to be used is an appropriate size for the job that it will be asked to perform. Many customers think that the smaller generators they use regularly to run their drills and small power tools are adequate. Generally these generators will not be able to perform adequately to run personnel hoists.

## Did You Know?

- **One** Astro 85 Series Hoist (Single Phase) will use about 5000 watts at startup, but only 1700 watts running
- **One** PC1-1000E will require approximately the same wattage as the Astro
- **One** PC1-1000EDV set for 110 Volts will use almost 4,000 watts at startup and only about 1,300 watts running.
- **One PC3** will require
- **If a generator is available, always use 220V power as it is more reliable than 110V**
- **The wattage requirement always doubles when two hoists are yoked together.**

For questions or comments, contact Customer Service at 1-800-560-CLIMB (2546) or customerservice@safeworks.com.

Power Climber®  
365 Upland Drive  
Seattle, WA 98188 USA

Phone: 1-800-560-2546  
E-mail: [CustomerService@SafeWorks.com](mailto:CustomerService@SafeWorks.com)  
Internet: [www.PowerClimber.com](http://www.PowerClimber.com)

SafeWorks®, LLC  
© 2008